REMARKS

Claims 1-8 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite fair failing to particularly point out and distinctly claims the subject matter which applicant regards as the invention in that the method claims should recite positive process steps and the apparatus claims should recite positive structure. Further, with respect to claim 2, the term "bottom fond" was found to be irregular and the perforated feed line was found to be different than the gravel casing well disclosed in the specification.

Claims 1-8 are cancelled without prejudice. New claims 9-18 are provided. Applicant submits that these new claims recite positive process steps and positive structure. Additionally, applicant submits that the term "bottom fond" is not irregular in that the definition for fond is "foundation or groundwork." *See* Webster's Revised Unabridged Dictionary, © 1996, 1998 MICRA, Inc. A copy of the online version is attached hereto. Accordingly, applicant respectfully submits that the bottom fond may also be understood as the bottom foundation of the horizon. Lastly, the term "perforated feed line" of claim 2 was set forth in the originally filed claims and thus, forms part of the disclosure. Perforated feed lines are conventional and known in the art and thus, need not be described in detail. *See Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d at 1384 (what is conventional or well known to one of ordinary skill in the art need not be disclosed in detail.) Moreover, the gravel casing well was merely set forth as an exemplary feed line. *See* Specification as filed, -page 7. These amendments were not made to overcome any prior art. Applicant submits that the grounds for rejection under 35 U.S.C. § 112, second paragraph are moot and are overcome to the extent the terminology remains in newly filed claims 9-18.

Claims 1 and 3-8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by German application 197 15 038 and stand rejected under 35 U.S.C. § 102(e) as being anticipated by Savage et al. Claims 1, 3 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the patents to Bernhardt (US 5,143,606 and 5,403,476 and German 39 31 012 and 40 01 011) and stand rejected under 35 U.S.C. § 102 (e) as being anticipated by Bernhardt (5,910,245). Claims 1, 6 and 8 stand rejected under 35 U.S.C.§ 102(b) as being anticipated by Cherry et al. or Blowes et al. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references applied to claim 1 and further in view of Japanese patent abstract 4-97028 or Rott et al.

Applicant submits that the rejections of claims 1-8 under 35 U.S.C. §§ 102(b) and (e) and 103(a) should be withdrawn and do not apply to now pending claims 9-18, for the reasons set forth below.

For a claimed invention to be anticipated by a single prior art reference pursuant to 35 U.S.C. § 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. In other words, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *See Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The cited German reference 197 15 038 describes a system which functions according to the "funnel-and-gate" principle. This is a system of non-permeable and permeable walls that are inserted into the ground water aquifer. The non-permeable walls act as a funnel, which direct the

entire ground water flow to the permeable walls, the gates. The gates contain a reactive zone in which the water cleansed. The "funnel-and-gate" technology is a purely passive system; the ground water enters the gate on one side on a broad front and leaves it on the other side on a broad front according to its natural flow. Here, the entirety of the ground water is being cleansed.

In contrast to the present invention, the use of filter walls provides, in particular, no consideration of the vertical pollutant distribution and hence minimization of the water volume to be cleansed. The present invention, in contrast, allows for a selective ground water extraction and treatment. The water is directed into a reactor at random height and directed as cleansed ground water at a required height from the reactor. The height of the input of the ground water into the reactor is selected in accordance with the pollutant type and location in the ground water. Additionally, the pressure of the ground water is used to select the output height of the cleansed water. Furthermore, the reactor material is selected according to the targeted pollutant in the water at a specific water level. Pollutants lighter than water may be preferably located at the top of the ground water level and may require a different reactor material in accordance with their physical and chemical properties than heavier pollutants located at the bottom of the ground water system.

Fundamental differences with respect to cited German reference 197 15 038 and to the "funnel-and-gate" technology in general can be summarized as follows:

- the possible consideration of the vertical pollutant distribution and hence
- the minimization of the water volume to be cleansed since in contrast to the "funnel-and-gate" technology only those parts of the ground water where the pollutant is actually located enter the reaction chamber;

- the optimized utilization of the reactor materials and respectively small reactor sizes due to a reduced throughput since
- the cleansing of the polluted ground water in the vertical reaction chamber is spatially separated from the rest of the ground water;
- the possible deployment in greater depths; and
- in areas, where the surface cultivation does not allow the use of a "funnel-and-gate" system
- the "funnel-and-gate" technology is a purely passive measure in contrast to the present invention.

Savage et al. describes a biowall for ground water remediation, which again, treats the entirety of the ground water. The height of the input of the polluted water is not selective. The water enters the biowall system on broad front and exits it on broad front. Additionally, the reaction zone comprises an open system for aerating the water with air or oxygen. The present invention comprises a reaction chamber, which is a closed system. It also allows for anaerobic processes as well as processes under pressure according to the specific physical-chemical properties of the desired reaction.

Bernhardt et al. describe well systems with a sub-surface water input and an output above the surface with a suction pump. The described systems are of the active pump-and-treat type. In such systems, a well is dug into the area of surface contaminations or ground water contaminations and the ground water is pumped to the surface. The pump-and-treat technology is therefore purely active. In contrast, in the present invention the water output level is designed below the top ground water level taking advantage of the pressure resulting from the water flow. Therefore, no pumps are necessary. Moreover, the description of *e.g.* German 39 31 012 by

Bernhardt et al. refer to filters as means for cleansing the polluted water and do not describe reactors, specifically no closed reactors, in which controlled reactions could take place.

Cherry et al. and Blowes et al. describe systems for treating contaminated ground water of the "funnel-and-gate" type. The shortcomings and the differences of a "funnel-and-gate" type system as compared to the present invention have been previously addressed.

Applicant respectfully submits that none of the above cited references discloses, either expressly or inherently, each and every element set forth in the pending claims. Based on the above remarks, Applicant respectfully submits that the claimed invention is novel over the applied prior art. More particularly, pending claims 9-18 recite limitations that distinguish over the cited prior. Accordingly, the rejections under 35 U.S.C. §§102(b) and (e) are overcome and withdrawal thereof is respectfully requested.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art references (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on an applicant's disclosure in the specification. *See In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

The U.S. Court of Appeals for the Federal Circuit restated the legal test applicable to rejections under 35 U.S.C. 103(a) (*In re Rouffet*, 47 USPQ2d 1453 (Fed. Cir., July 15, 1998)). The Court stated:

> [V]irtually all [inventions] are combinations of old elements. Therefore an Examiner may often find every element of a claimed invention in the prior art. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an Examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." To prevent the use of hind sight based on the invention to defeat patentability of the invention, this courts requires the Examiner to show a motivation to combine the references that create the case of obviousness. The Board [of Appeals] did not, however, explain what specific understanding or technological principle within the knowledge of one of ordinary skill in the art would have suggested the combination. Instead, the Board merely invoked the high level of skill in the field of the art. If such a rote indication could suffice to supply a motivation to combine, the more sophisticated scientific fields would rarely, if ever, experience a patentable technical advance. Instead, in complex scientific fields, the Board could routinely identify the prior art elements in an application, invoke the lofty level of skill, and rest its case for rejection. To counter this potential weakness in the obviousness construct the suggestion to combine requirements stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.

In re Rouffet, 47 USPQ2d 1457-58 (Fed. Cir., July 15, 1998) (citations omitted, emphasis added).

Applicant respectfully submits that the combination of the art cited with respect to the above 102 rejections and Rott et al or the Japanese abstract (whether or not they can be combined), fail to teach or suggest, either expressly or inherently, all the limitations of the claims 9-18. Additionally, there is no motivation to combine any of the cited art against claim 1 with either Rott et al. or the Japanese patent abstract. Thus, any combination of the prior art cited against claim 1 in combination with Rott et al. or the Japanese patent abstract would constitute improper hindsight. Applicant submits that the arguments made above in connection with the

prior 102 rejections are applicable here for this obviousness rejection; therefore, applicant incorporates those remarks herein by reference.

Rott et al. describes a system in which oxygen rich water is fed through horizontal filter lines into the ground water system, where nitrification takes place. Afterwards the treated ground water is pumped to the surface. The area close to the well may be considered as the reactor. However, the publication describes an open system, where defined chemical and physical conditions according to the desired reaction *cannot* be adjusted. Further, the polluted water of a selected area of the aquifer is not being disposed into a reactor via horizontal feed lines, instead oxygen rich water, *i.e.*, the reaction material, is being fed into the aquifer.

Applicant respectfully submits that the combination of the art cited with respect to the above 102 rejections and Rott et al (whether or not they can be combined), fail to teach or suggest, either expressly or inherently, all the limitations of the claims 9-18. Further, there is no motivation to combine the funnel-and-gate, biowall or pump-and-treat type systems of the prior art cited against claim 1 with the oxygenated water system of Rott et al. to form the system of selective ground water extraction from randomized horizons of the claimed invention. Thus, the present invention describes a system that is new and non-obviousness and the rejection is not tenable and should be withdrawn.

Japanese patent abstract 4-97028 describes vacuum well in which a vacuum in the lower part of the well increases the feed rate. Applicant respectfully submits that the combination of the art cited with respect to the above 102 rejections and the Japanese patent abstract (whether or not they can be combined), fail to teach or suggest, either expressly or inherently, all the limitations of the claims 9-18. Further, there is no motivation to combine any of the prior art cited against claim 1, which are funnel-and-gate, biowall or pump-and-treat type systems with

the vacuum system disclosed in the Japanese abstract can be to form the system of selective ground water extraction from randomized horizons of the claimed invention.

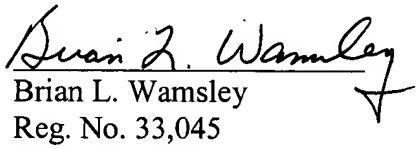
Accordingly, applicants respectfully request favorable consideration and allowance of all of the claims now present in the application.

Applicant believes that all claims are patentable over the art, and submits that the application is in condition for allowance and request that the Examiner pass the case to issue.

Should the Examiner require or consider it advisable that the claims and/or drawings be amended in formal respects in order to place the case in condition for allowance, then it is respectfully requested that such amendment be carried out by Examiner's Amendment and the case passed to issue. Furthermore, should the Examiner feel that the above new claims and remarks do not place the present application in condition for allowance, applicant hereby requests a telephonic interview at a date and time convenient to the Examiner that is prior to the issuance of another office action in order to advance this case to allowance. The Examiner is invited to telephone the undersigned to schedule such a telephonic interview, if necessary.

The Commissioner is authorized to charge any required fees to Goodwin Procter LLP Deposit Account 06-0923. A duplicate copy of this sheet is provided.

Respectfully submitted,



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